

### CLAIMS

1. A MOS transistor with a controlled threshold voltage, comprising a SOI which includes a substrate composed of a semi-conducting material, a single crystal layer composed of a semi-conducting material and an insulating layer interposed between said substrate and said single crystal layer,

said single crystal layer being formed therein with a source region, a drain region and a surrounded region surrounded by said source region and said drain region,

- said surrounded region including a depletion layer having a composition surface which is in contact with said insulating layer,

said MOS transistor comprising an EIB-MOS transistor of which said substrate is adapted to be applied with a voltage of a first polarity for inducing charges of a second polarity over said composition surface of the surrounded region.

2. The MOS transistor according to claim 1, wherein said EIB-MOS transistor comprises an EIB-DTMOS transistor.

3. The MOS transistor according to claim 2, wherein said EIB-DTMOS transistor comprises an accumulation mode EIB-DTMOS transistor having a channel which is doped with impurities so that said channel has the same conductive type as that of carriers introduced into said channel.

4. The MOS transistor according to claim 1, wherein said EIB-MOS transistor comprises an EIB-VTMOS transistor.

5. The MOS transistor according to claim 1, included in a CMOS circuit as one of pair of EIB-MOS transistors.

6. A method of controlling a threshold voltage of a MOS transistor with a controlled threshold voltage, said MOS transistor being an EIB-MOS transistor and comprising a SOI which includes a substrate composed of a semi-conducting material, a single crystal layer composed of a semi-

conducting material and an insulating layer interposed between said substrate and said single crystal layer, said single crystal layer being formed therein with a source region, a drain region and a surrounded region surrounded by said source region and said drain region, said surrounded region including a  
5 depletion layer having a composition surface which is in contact with said insulating layer, wherein said method comprises the step of applying a voltage of a first polarity to said substrate for inducing charges of a second polarity over said composite surface of the surrounded region.

